CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

August 8, 2007

Mr. Gary Carr
SPPE Permitting Manager
Chevron
1450 Marina Way S.
Richmond, CA 94804-3747

Dear Mr. Carr:

DATA REQUESTS 1 to 83 (SET 1) FOR THE CHEVRON POWER PLANT REPLACEMENT PROJECT (07-SPPE-1)

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission staff is asking for the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project; 2) assess whether the facility will be constructed and operated in compliance with applicable regulations; 3) assess whether the project will result in significant environmental impacts; 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner; and 5) assess potential mitigation measures.

The requested information in Data Requests (Set 1) is in the technical areas of air quality, biological resources, cultural resources, geological resources, hazardous materials management, paleontological resources, project description, public health, soil and water resources, socioeconomics, transmission system engineering, visual resources/plume, and waste management. Written responses to the enclosed data requests (Set 1) are due to the Energy Commission staff on or before September 8, 2007.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, you must send a written notice to me and the Committee within 20 days of receipt of this request. The notification must contain the reasons for not providing the information, the need for additional time, and the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please call me at (916) 651-8891, or email me at mdyas@energy.state.ca.us.

Sincerely,

Mary Dyas, Project Manager
Energy Facilities Siting Division

Enclosure

Chevron Richmond Power Plant Replacement Project
07-SPPE-1
DATA REQUESTS

Technical Area: Air Quality
Author: Brewster Birdsall

BACKGROUND

Project Description and Control Technologies

The project description (Figure 2.1-3) shows the stack of the "Cogen 3000" combustion turbine generator (CTG) and heat recovery steam generator (HRSG) to be 138.5 feet (42.2 meters), but a height of 50.6 m is used in the air quality analysis (p. 8.1-27).

DATA REQUEST

1. Please identify the correct CTG/HRSG stack height, and ensure that the dispersion modeling analysis, including analyses for fumigation and for health risks, use the correct height.

BACKGROUND

The control efficiency of the cooling tower drift eliminators is presented as 0.002 percent in Section 2.1.11.3, and 0.005 percent in Appendix Table 8.1B-3. Cooling towers at other facilities recently permitted in the Bay Area (e.g., Tesla Power Plant) achieve a drift rate of 0.0005 percent.

DATA REQUEST

2. Please identify the correct drift rate and explain if a drift rate of 0.0005 percent is not achievable.

BACKGROUND

The proposed CTG would fire natural gas or liquid petroleum gas, and the proposed HRSG would fire refinery fuel gas. The chemical and thermal properties of these fuels are not provided in the application.

DATA REQUEST

3. Please identify the heating value and chemical characteristics of the proposed fuels.

BACKGROUND

The Bay Area Air Quality Management District has determined that nitrogen oxides (NOx) from combined cycle combustion turbine generators over 40 MW can feasibly achieve 2.0 parts per million by volume dry basis (ppmvd) after implementation of Best Available Control Technology, but the application for the proposed CTG requests a limit of 2.5 ppmvd NOx.

DATA REQUEST

4. Please explain the basis for selecting a CTG with a combustion system using steam injection for control of NOx because the General Electric Frame 6B is also offered with a dry low-NOx combustion system that could achieve lower NOx levels (15 ppmvd at the CTG exhaust instead of the proposed 25 ppmvd).

5. Please describe whether the CTG/HRSG would be likely to comply with a 2.0 ppmvd NOx limit at the stack.

BACKGROUND

The South Coast Air Quality Management District has determined that ammonia slip from a similarly-sized combined cycle combustion turbine generator (at the City of Vernon, Light & Power) can feasibly be controlled to a level of 5 ppmvd, but the application for the proposed CTG requests a limit of 10 ppmvd for ammonia.

DATA REQUEST

6. Please describe whether an ammonia slip limit of 5 ppmvd would be achievable from the engineering perspective for the proposed CTG, considering possible use of a dry low-NOx combustion system and/or an expanded catalyst system.

BACKGROUND

Project Emissions

Emissions during commissioning (Table 8.1-14) and various modes of operation including startups (Table 8.1-15) are not explained. Background information on some emission calculations is not provided. Maximum annual, daily, and hourly emissions (Table 8.1-19) should include emissions from startups/shutdowns under the worst-case, reasonably foreseeable operating schedule. Section 2.1.16 shows that “Base Load” and “Load Following” modes are possible. These emissions including startups/shutdowns should be quantified and modeled for ambient air quality impacts.

DATA REQUEST

7. Please describe the steps of commissioning and provide the basis for the commissioning emission rates, including supporting documentation from vendors, emission calculations, or information prepared for the local air district permitting process but not included in the Energy Commission application.

8. Please provide the basis for the startup emission rates, including supporting documentation from vendors, emission calculations, or information prepared for the local air district permitting process but not included in the Energy Commission application.

9. Please provide the basis for the 6.3 pound per hour particulate matter emission rate from "Cogen 3000" because it is higher than what would be expected with exclusive use of pipeline natural gas.

10. Please develop the worst-case, foreseeable operating schedule and quantify the proposed project emissions (with startups) on an hourly, daily, and annual basis.

11. Please provide an air dispersion modeling analysis of the worst-case, foreseeable operating schedule that includes startups.

BACKGROUND

Net Emission Increases

The application shows conflicting emissions totals. According to Table 8.1-19, the CTG, HRSG, and cooling tower would emit 47.3 tons per year (tpy) PM10. However, Table 8.1-27 shows that the Power Plant Replacement would cause 14.8 tpy PM10, and text following that table states that the proposal would offset an 11 tpy PM10 increase. Table 8.1-27 (Section 8.1.8.2) does not provide sufficient detail to determine which sources create the reductions or what quantity of emission reduction credits (ERCs) would be surrendered.

DATA REQUEST

12. Please itemize the existing emission sources within the refinery that would be shutdown as a result of the Hydrogen Plant Replacement and Power Plant Replacement and quantify the baseline annual emissions.

13. Please show the proposed project's annual emission increases (including startups/shutdowns) for comparison with the baseline annual emissions.

14. Please identify the quantities of ERCs for each criteria pollutant that would be surrendered as part of the proposed project. The list of potential ERCs for

surrender (Table 8.1-28) should be updated because some of the certificate numbers are no longer applicable.

15. Please describe the plan for shutting down existing sources as part of the Hydrogen Plant or the Power Plant Replacement Projects and how the proposed reductions would be made enforceable, real, and permanent.

BACKGROUND

Cumulative Impacts

Cumulative impacts are addressed (p. 8.1-37) by referring to the Chevron Energy and Hydrogen Renewal Project Draft EIR. Numerous new nearby stationary emission sources would occur in the area as a result of the Renewal Project and the numerous other pending projects listed in Section 8.1.9, including the Praxair project at the Chevron refinery and the ConocoPhillips projects at its refinery in Rodeo, Contra Costa County. These sources should be addressed in a quantitative ambient air quality analysis of cumulative impacts. Additionally, Energy Commission staff seeks analysis of the proposed Power Plant Replacement Project in conjunction with the existing electrical generation emission sources at the refinery including "Cogen 1000" and "Cogen 2000."

DATA REQUEST

16. a. Please identify the new stationary sources that would occur in the cumulative scenario.

    b. Please prepare an ambient air quality impact assessment of the cumulative sources including those related to the Renewal Project and other emission sources associated with "reasonably foreseeable projects" within six miles of the proposed project.

17. a. Please identify the emissions, locations, and stack characteristics of existing generating facilities at the refinery including "Cogen 1000" and "Cogen 2000."

    b. Please prepare an ambient air quality impact assessment of these sources with the proposed project.

Technical Area: Biological Resources
Author: Heather Blair

BACKGROUND

The SPPE application provides a thorough description of the regional biological resources, including the Chevron Energy and Hydrogen Renewal Project area (i.e., refinery boundary) and vicinity. Although the proposed Chevron Power Plant Replacement Project (PPRP) area was included in this general description, the biological setting and impact analysis did not distinguish between the Chevron PPRP components. Therefore, staff is unable to complete an analysis specific to the PPRP components.

DATA REQUEST

18. Please describe the current environmental condition of areas proposed for each Chevron PPRP component (i.e., Cogen 3000, H2-STG, 115 kV transmission line reconductoring, and temporary construction laydown areas) and adjacent areas, including but not limited to the Chevron water treatment marsh. The characterization should include, but is not limited to:

    a. a description of the habitat type(s);

    b. a listing of the common and special-status species that occur or have the potential to occur within this relatively limited area; and

    c. separate characterizations of nearby marshes (i.e., Chevron water treatment marsh, San Pablo Creek marsh, and Wildcat Creek marsh).

BACKGROUND

Section 8.2.5.2, Discussion of Impacts, refers to Section 8.1, Air Quality, for a discussion of impacts to soils and vegetation from cooling tower drift and combustion turbine emissions. However, this information is not presented in the Air Quality section and is needed for a complete analysis.

DATA REQUEST

19. Please provide the aforementioned discussion of impacts to soils and vegetation from cooling tower drift and combustion turbine emissions.

Technical Area: Cultural Resources
Author: Beverly E. Bastian

BACKGROUND

The Chevron PPRP application does not discuss any current standing structures on the two parcels for which new construction is proposed. Satellite imagery (date unknown) on Google Maps indicates that the site proposed for the new Cogen 3000 facility has no standing structures, but the site proposed for the expansion of Substation 5 appears to have structures on it. Additionally, the site proposed for the steam generator at the hydrogen plant appears to have standing structures in the locations proposed for the generator and for the switchgear enclosures. Staff needs to know what these structures are, and what their ages are, to fully assess the proposed project's potential impacts to possibly significant cultural resources.

DATA REQUESTS

20. Please identify any structures that are currently occupying the proposed locations of the Substation 5 expansion (if applicable – see Project Description data request) and of the generator and switchgear enclosures for the hydrogen plant.

21. Please provide the ages of any structures that will be demolished to accommodate the construction of any of the proposed components of the PPRP.

22. If any structure 45 years of age or older would be demolished to accommodate the construction of any of the proposed components of the PPRP, please provide a brief report, prepared by an architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History, on the structures which will be demolished. The report must include recommendations regarding the potential eligibility for the California Register of Historical Resources (CRHR) of all structures 45 years of age or older that would be demolished as part of the PPRP project.

23. Please provide the resume of the architectural historian making the eligibility recommendations for all structures 45 years of age or older that would be demolished as part of the PPRP project.

BACKGROUND

The PPRP application states on p. 1-3 that the power output from the new steam turbine at the hydrogen plant will be conveyed to on-site Substation 4 via 800 feet of new 12.47-kV cables in a new piperack within the new plant before connecting to 2,000 feet of existing cables on poles, but on p. 5-4, the applicant says the new 12.47-kV cables will run 1,500 feet before connecting to the existing cables.

Additionally, the application does not describe the installation of the new piperack, in particular, whether it would involve any ground disturbance. To fully assess the potential impacts of the proposed project to unknown buried archaeological resources, staff needs the correct figures for the length of the new transmission cables and of the existing cables, and details on the installation of the new piperack.

DATA REQUESTS

24. Please provide the correct measurement of the length of the new cable construction needed for the proposed project, and, in addition, the correct measurement of the length of the existing cables between the new cables and Substation 4.

25. Please describe the installation of the new piperack, focusing on any necessary ground disturbance, such as excavations for footings, if such will be needed.

BACKGROUND

The applicant proposes to reconductor two parallel on-site transmission lines, Cogen Line 1 and Cogen Line 2, to increase their ampacity to accommodate the output from the proposed Cogen 3000 replacement power plant. These reconductored lines would connect to on-site Substation 5 and then loop through PG&E's Standard Oil Substation (SOSS). The PPRP application does not discuss any changes which would be required at Substation 5 or at the SOSS to accommodate the greater ampacity of Cogen Lines 1 and 2. Nor does the application provide information on the ages of these substations. Staff needs the ages of the substations to consider whether or not they could be potential historic resources. Staff also needs information on any planned modifications at the two substations in order to assess potential impacts to potential cultural resources.

DATA REQUESTS

26. Please provide the age of Substation 5 and the age of the SOSS.

27. If either or both are 45 years of age or older:

    a. Please provide a discussion of any modifications to these structures that the reconductoring of Cogen Lines 1 and 2 would require.

    b. Please provide a brief report, prepared by an architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History, on Substation 5 and/or the SOSS. The report must include recommendations regarding the potential eligibility of these resources for the CRHR, and an evaluation of the significance of the impacts of any proposed modifications on Substation 5 and/or the SOSS.

c. Please provide the resume of the architectural historian making the eligibility recommendations for Substation 5 and/or the SOSS.

BACKGROUND

In the Cultural Resources section, the application states that the local ordinances, plans, and policies of the city of Richmond do not apply to this project (p. 8.3-4), and then says that this jurisdictional issue is discussed in the section 8.4, Land Use. Staff did not find such a discussion in the Land Use section. To complete its analysis of the proposed project's compliance with laws, ordinances, regulations, and standards, staff needs to understand why the applicant believes that the local ordinances, plans, and policies of the city of Richmond do not apply to this project.

DATA REQUEST

28. Please explain why the local ordinances, plans, and policies of the city of Richmond, with respect to cultural resources, do not apply to this project.

BACKGROUND

For Native American consultation regarding the proposed project, the applicant is relying on the previous outreach to Native Americans made for the Chevron Renewal Project in October, 2005 (p. 8.3-14). In addition to providing contact information for concerned Native Americans, the Native American Heritage Commission (NAHC) cautions that a given list is only current for the date on which the list is sent to the person requesting it, so the applicant is citing the results of an outreach effort addressed to a list of Native Americans that is nearly two years old. Staff requires that an up-to-date list of Native Americans be obtained from the NAHC and new information specific to this proposed PPRP be sent to any Native American individuals or groups not included on the Chevron Renewal Project's October, 2005, list, with a request for information on any known cultural resources.

DATA REQUESTS

29. Please obtain an up-to-date list of potentially concerned Native Americans from the NAHC and send out letters informing those not on the previous list about the proposed PPRP project. Please include with the letters a map of the project area showing the two project sites, the Cogen 3000 site and the hydrogen plant site.

30. Please provide copies of any letter or email responses received from Native Americans and summaries of any responses received by telephone. If responses include locations of cultural resources of concern to Native Americans, please provide those responses under confidential cover.

BACKGROUND

The DEIR for the Chevron Renewal Project states that the project area is underlain by fill deposits related to excavations for construction of the refinery in 1901 and cites as a source of the information the 1899 USGS "San Francisco" quadrangle map (p. 4.5-5). This map is described as showing the area where the refinery now stands as underwater prior to development. Staff needs to review this map to assess the potential of the project sites to contain buried or submerged cultural resources.

DATA REQUEST

31. Please provide a copy of the portion of the 1899 USGS "San Francisco" quadrangle map that shows the PPRP project area. Reduction in size is acceptable as long as the map is legible and the map scale is provided at the same reduction.

BACKGROUND

The application states that the project area is sensitive for archaeological resources on p. 8.3-9, but on p. 8.3-13 it states that the potential for cultural resources is considered extremely low. Staff understands that the location of the refinery on a peninsula between two bays and adjacent to large estuaries makes the project area very likely to have been utilized by Native Americans in prehistory, and, indeed, in the early twentieth century archaeologists identified numerous large and rich shellmound sites near the shorelines of San Francisco and San Pablo Bays—including on or near the refinery property. Staff also understands that the applicant's cultural resources consultant assessed the two project sites as doubly disturbed, from previous construction and from historic-era filling to create new developable land out of marshes, and thus the consultant considered the project sites' potential for archaeological resources to be extremely low. Staff needs to consider the potential for significant cultural resources to be buried under recent fill, as proved to be the case at CA-CCo-295, discussed in the Draft Environmental Impact Report (DEIR) for the Chevron Renewal Project (2007: p. 4.5-3).

DATA REQUEST

32. Please discuss the potential for prehistoric cultural resources to be buried under fill at one or both of the proposed project sites. Include in your discussion the depth of the fill in the two project areas and the greatest depth that will be reached by project-related excavations at each of the proposed project sites.

BACKGROUND

Appendix 8.11 of the application includes an SAIC soils evaluation report for the proposed hydrogen production plant, dated April 28, 2006. Figure 1 of that report has a

trench feature depicted in three sections, labeled “Former Majka Ditch,” Sections I, II, and III, with a note explaining that a Majka Ditch investigation was performed by Dames & Moore in 1989-1990. (No further information on this investigation was provided.) Staff could find no discussion of this ditch anywhere in the SAIC soils report or in the soils section. Staff needs to know what the Majka Ditch is/was to fully understand the nature and extent of previous disturbance at the proposed hydrogen plant site.

DATA REQUESTS

33. Please explain what the Majka Ditch is/was.

34. Please provide a copy of the Dames & Moore report referenced in Figure 1 of the SAIC soils evaluation report dated April 28, 2006.

Technical Area: Geological Resources
Author: Patrick Pilling, Ph.D., P.E., G.E.

BACKGROUND

Existing subsurface information is essential to completely evaluate a site with respect to potential geologic hazards and how the existing materials may impact design, construction, and operation of the facility. No site-specific subsurface information has been included with the application; however, site-specific geotechnical reports are referenced in the application. Both Geological and Cultural Resources staff will review these reports prior to completing their analyses.

DATA REQUEST

35. Please provide a copy of available site-specific geotechnical reports for the project, in particular the *Geotechnical Investigation, Hydrogen Replacement Plant Project* (URS 2006a) and the *Geotechnical Investigation, GOGEN 3000 Project* (URS 2006b) as referenced in Section 8.13 of the application.

Technical Area: Hazardous Materials Management, Worker Safety, and Fire Protection
Author: Dr. Alvin Greenberg

BACKGROUND

Table 8.11-1 of the application does not list the entire hazardous materials inventory. The Table includes only anhydrous ammonia and oils, and states that small amounts of various water treatment chemicals would be stored in portable containers. Sections 8.11.5.2.1, 8.11.5.2.2, and 8.11.5.2.3 indicate that sulfuric acid (in a tank) and hydrogen gas (in cylinders) will also be stored at the project as well as water treatment chemicals in a storage tank. Amounts, concentrations, and storage locations are not provided. Staff needs this information in order to assess proper management of hazardous materials and potential risks to workers and the off-site public.

DATA REQUEST

36. Please provide a table listing the identity and CAS (Chemical Abstract Service) number of every hazardous material that will be used at the power plant project, the concentration of each liquid hazardous material, the maximum amount to be stored on-site, the location, the planned use, a summary of the hazardous characteristics, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/ Superfund Amendments and Reauthorization Act (SARA) Reportable Quantity.

BACKGROUND

The applicant states that anhydrous ammonia will be delivered to the project through 300 feet of 2" piping from the refinery's existing storage, and that the piping will contain about 250 lbs. No further information was provided regarding pipe materials, valves, emergency shutoff mechanisms, or ammonia detectors. Furthermore, an Off-site Consequence Analysis (OCA) was not conducted by the applicant because the applicant felt that this project adds only slightly to the use of anhydrous ammonia at the refinery. Staff must have complete information about the use of this acutely hazardous material regardless of the amount the project will use.

DATA REQUEST

37. Please provide descriptions of:

    a. the anhydrous ammonia storage tank;

    b. the type of pipe materials that will be used to transport anhydrous ammonia from the storage tank to the power project;

c. the number and type of control valves and emergency shut-off valves and whether they are manually and/or automatically activated;

d. the number and location of ammonia sensors at the storage tank;

e. the pipe route;

f. the total amount of anhydrous ammonia estimated to be used by the project in one year; and

g. the OCA for the use of anhydrous ammonia at the project site.

BACKGROUND

Section 8.11.3.2 states that transport of hazardous materials will be mostly within the plant since most chemicals are already used and stored on-site. However, section 8.11.5.3 states that hazardous materials will be "periodically" delivered to the site. In order to properly assess the risk of transporting hazardous materials for use at the power plant, staff needs additional clarification on whether any quantity of hazardous materials proposed for use on the power plant project will come from an off-site source.

DATA REQUEST

38. a. Please provide a description of the sources of any amount of hazardous materials that would be transported by vehicle from off-site sources, regardless of the distance or amount transported.

b. Please identify:

i. the material,

ii. the amount transported at any one time,

iii. the frequency of trips,

iv. the route to be taken to the Chevron Richmond Refinery, and

v. the type and specifications of the transport vehicle.

BACKGROUND

The only statement found in the application pertaining to the safety of workers at the proposed power project was found in section 2.2.2.2. This consisted of a 27-word statement that the project intends to comply with federal and state occupational safety and health program requirements. However, staff needs a more detailed description of the Personnel Safety Program that Chevron proposes to implement at this power

project so that staff can be assured that workers will be protected and experience a safe workplace.

DATA REQUEST

39. Please provide a description of what California Occupational Safety and Health Administration (CalOSHA) regulations, industry guidelines, and local ordinances will be followed when establishing and implementing a worker safety program at the proposed power plant project.

BACKGROUND

The application has understandably provided a very brief description of security measures for this project. These matters are kept confidential to ensure that information about power plant security is not available to unauthorized persons who may pose a threat to the power plant. Because it will be located within the existing refinery area, staff assumes that that power plant will be under the same security program as the refinery. However, staff needs to be informed about the security approach in order to be assured that the power plant will comply with security regulations and guidelines.

DATA REQUEST

40. Please indicate when Chevron personnel can provide staff with a confidential briefing on security measures that would cover the power plant project **or** when Chevron can make their security plan and other documents available for consideration by Commission staff**.**

Technical Area: Paleontological Resources
Author: Patrick Pilling, Ph.D., P.E., G.E.

BACKGROUND

Existing paleontologic information is essential to evaluate a site with respect to potential paleontologic resources and how construction of the project may impact potential resources. No site-specific paleontologic information has been included with the application; however, site-specific data is referenced in the application.

DATA REQUEST

41. Please provide a copy of available site-specific paleontologic information, in particular the field reconnaissance document dated November 2006 as referenced on Page 8.14-5 of the application.

BACKGROUND

Information on the specific location of known paleontologic resources, locality records,, and maps at a scale of 1:24,000 depicting any such resource locations, are necessary to determine the project's potential for impacts to paleontological resources. The text of the application discusses the potential for each geologic unit to contain paleontologic resources and includes a geologic map; however, a discussion and map depicting the location of known paleontologic resources in the vicinity of the project has not been included with the application.

DATA REQUEST

42. a. Please provide a discussion of documented paleontologic resources within the vicinity of the project, and

    b. Please provide, under confidential filing, a map depicting their locations, as applicable.

BACKGROUND

Paleontologic professionals maintain substantial training in the identification and evaluation of geologic units and their potential to contain paleontologic resources, as this is necessary to properly evaluate a site with respect to potential impacts to paleontologic resources.

DATA REQUEST

43. Please provide the name and qualifications of the author of Section 8.14 of the application.

Technical Area: Project Description
Author: Mary Dyas

BACKGROUND

Figure 2.1-2 in the SPPE application, shows the existing Cogen facility plus the proposed new Cogen 3000. In the figure, in the area of Substation 5 (Sub 5), there is a label that reads "Substation No. 5 STG Addition". The applicant states in Section 2.0 Project Description that the Cogen 3000 generator will connect via a new generator step-up transformer to the existing 115-kV Substation 5 switchyard. Within Section 2.0, there is no indication of an expansion or addition to Sub 5 other than the generation step-up transformer. It is unclear to staff if there is a new addition or expansion planned for the substation.

DATA REQUEST

44. Please clarify whether Sub 5 will be added to or expanded, and to what extent.

Technical Area: Public Health
Author: Dr. Alvin Greenberg

BACKGROUND

The applicant states in section 8.6.4.2 that a construction Health Risk Assessment (HRA) is less important than control measures and therefore no HRA is performed and instead the applicant will incorporate diesel PM10 control measures that are listed in the Draft EIR (2007) prepared for the Chevron Renewal Project. The applicant stated that the justification for this approach can be found in the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines (1999) which emphasize implementation of effective control measures rather than detailed quantification of construction emissions. The applicant further states that as a result of the implementation of diesel PM10 control measures, no significant public health effects are expected during the construction phase. The applicant provides construction emission factors for NOx, SOx, CO, PM2.5 and PM10 in Appendix 8.1A but not for Toxic Air Contaminants (TACs) or diesel particulate matter.

Despite the rationale stated by the applicant, and despite the fact that staff will evaluate the diesel emissions control measures described in the DEIR, staff believes that it must have all the information available in order to fully evaluate control measures and make a conclusion regarding the adequacy of the mitigation proposed. Therefore staff needs a health risk assessment that evaluates diesel emissions from construction vehicles during the construction phase of this power plant.

DATA REQUEST

45. Please provide a health risk assessment of construction vehicle diesel emissions.

BACKGROUND

The only sources evaluated in the Hotspots Analysis and Reporting Program (HARP) analysis in the SPPE Application are the cogeneration stacks and cooling tower. The applicant states that cumulative impacts were assessed in section 5.2.5.12 of the DEIR for the Chevron Renewal Project and that no cumulative impacts are expected. Therefore, no other on-site or off-site sources were included and no quantitative cumulative analysis was conducted. The SPPE application Section 8.1 (Air Quality) states Section 5.2 of the DEIR for the Chevron Renewal Project (ESA 2007) includes the following sources in a cumulative impacts discussion: emissions from the Power Plant Replacement Project (PPRP), the Chevron Renewal Project, and 17 pending projects (9 of which would be located at the Chevron Richmond refinery). The applicant states that the results of the analysis presented in Section 5.2.5.12 of the DEIR indicate that most of the cumulative air quality construction or operational impacts will be “insignificant, or mitigated to levels less than significant". Staff finds the DEIR’s cumulative impact analysis to be “qualitative” in nature. In the absence of specific,

quantitative detail, staff is unable to properly assess the cumulative impact of the PPRP plus the other planned projects.

DATA REQUEST

46. Please provide a quantitative cumulative impact assessment using the HARP model of all projects identified in section 5.2.3 of the DEIR for the Chevron Renewal Project.

BACKGROUND

The cooling tower will use reclaimed water; however, water quality data is not provided. The maximum Total Dissolved Solids (TDS) concentration is provided in Table 8.1-18 and some cooling tower emissions are provided in Table 8.6-4. The application also states that emission factors for the cooling water were based on information provided by Chevron as part of the BAAQMD permit application (Chevron, 2006). Staff needs to know the chemical makeup of this water in order to determine the accuracy of the emissions estimated in the health risk assessment.

DATA REQUESTS

47. Please provide a table showing the water quality parameters of the water used in the cooling tower.

48. Please also provide the Chevron 2006 report referenced above.

BACKGROUND

The summary of the HRA results provides Universal Transverse Mercator (UTM) coordinates for the proposed project's Point of Maximum Impact (PMI) for cancer, chronic hazard, and acute hazard. Furthermore, there are no distances from the sources to these locations or map showing the locations of maximum impact relative to the facility fenceline and structures on and off-site. Staff needs this information in order to adequately assess the impacts of the proposed project.

DATA REQUEST

49. Please provide a map showing the location of the PMI for cancer risk, chronic hazard, and acute hazard.

BACKGROUND

The air dispersion analysis was conducted using HARP with the "rural" option chosen. Given the many structures on the Chevron Refinery site and the surrounding densely populated area, staff needs to know the rationale for choosing the rural option.

DATA REQUEST

50. Please provide the rationale for choosing the "rural" option for the HARP model.

BACKGROUND

The SPPE Application states that the emission factors for TACs from the gas turbine used in the HRA were obtained from the Energy & Environmental Research Corporation (EERC) August 1998 publication entitled "Air Toxic Emission Factors for Combustion Sources Using Petroleum Based Fuels, Final Report, Volume II". Staff needs this information to assess the accuracy of emission factors from the three fuels proposed for use in the combustion turbine.

DATA REQUEST

51. Please provide the August 1998 report referenced above.

Technical Area: Socioeconomics
Author: Hedy Born

BACKGROUND

The applicant has stated on page 8.7-4 (Section 8.7.2.1.2) of the SPPE that the "estimated value of materials and supplies that will be purchased locally during construction is expected to be about $60 million." To gather a complete set of data and information on fiscal resources of the proposed project, please provide the following.

DATA REQUEST

52. a. Please provide the increase in estimated annual property taxes as a result of the project;

    b. Please provide the operation cost (excluding fuel costs) within Contra Costa County; and

    c. Please provide the estimated school impact fees, if applicable.

BACKGROUND

The applicant has stated on page 8.7-4 (Section 8.7.2.1.1) of the SPPE that an average workforce of 124 workers would be required over the 26-month construction period of the Cogen 3000 and H2-STG. In Section 8.7.2.1.2 on the same page, the construction payroll is estimated to be approximately $40 million. These numbers calculate such that the average construction worker would make approximately $322,580.65 over the 26-month construction period. This seems incongruous.

DATA REQUEST

53. Please verify the average per worker payroll during construction, including any overtime hours assumed and the terms (e.g., time-and–a-half pay rate, weekend and/or holiday pay rates).

BACKGROUND

Quantitative secondary economic impacts (with and without dollars) add useful additional information at the local (county)/regional/state level about the economic benefits/economic development from the project.

DATA REQUEST

54. Please provide full quantitative economic impacts (direct and secondary-indirect and induced) during the construction and operation phases of the project. Utilize

an economic impact model (e.g., IMPLAN, REMI) that will estimate quantitatively at least the local (Contra Costa County) employment and income multipliers/secondary impacts. Staff recommends Type II or Type III employment and income multipliers since they show the full secondary economic impacts. Finally, provide the year for the economic impact analysis estimates.

BACKGROUND

Section 8.7.2.1.2 states the fiscal resources of the proposed project. In order to know the time value of money, please provide the following.

DATA REQUEST

55. Please indicate the year for all economic dollar estimates (e.g., construction costs, construction and operation payroll, sales taxes, property taxes, school impacts fees, etc.).

Technical Area: Soil and Water Resources
Author: Christopher Dennis, P.G.

BACKGROUND

Construction and operation of the Chevron Richmond Refinery Power Plant Replacement Project (PPRP) may induce water and wind erosion at the COGEN 3000 area, hydrogen plant, switchgear and cooling tower areas, and construction laydown/parking sites. Both the generation and laydown/parking sites are currently developed with existing industrial buildings, paved areas, and graded areas. These facilities will be demolished and removed prior to initiating construction, exposing and disturbing the underlying soil.

To determine the potential impacts to water and soil resources from the construction of the PPRP, the Energy Commission requires a Drainage Erosion and Sediment Control Plan (DESCP). The DESCP is to be updated and revised as the project moves from the preliminary to final design phases and is to be a separate document from the Construction Storm Water Pollution Prevention Plan (SWPPP). The DESCP, submitted prior to site mobilization, must be designed and sealed by a professional engineer/erosion control specialist.

The Commission recognizes that a DESCP may be in place for the Chevron Refinery as a whole, and that all or elements of the PPRP may be covered under the existing DESCP.

DATA REQUEST

56. a. Please explain how the PPRP fits into the existing DESCP for the Chevron Refinery as a whole and provide a draft DESCP containing elements A through I listed below. These elements will outline site management activities and erosion/sediment control Best Management Practices (BMPs) to be implemented during site mobilization, excavation/demolition, construction, and post-construction activities. The level of detail in the draft DESCP should correspond to the current level of planning for site demolition and corresponding site grading and drainage.

    b. Please provide all conceptual erosion control information for those phases of construction and post-construction that have been developed or provide a statement when such information will be available.

A. Vicinity Map – A map(s) at a minimum scale 1"=100' shall be provided indicating the location of all project elements and depictions of all significant geographic features including swales, storm drains, and sensitive areas.

B. Site Delineation – All areas subject to soil disturbance for the PPRP (project site, lay down/demolition areas, all linear facilities, landscaping areas, and any other project elements) shall be delineated showing boundary lines of all construction/demolition areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.

C. Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the PPRP construction, lay down/demolition, and landscape areas and all transmission and pipeline construction corridors.

D. Drainage Map – The DESCP shall provide a topographic site map(s) at a minimum scale 1"=100' showing all existing, interim, and proposed drainage systems and drainage area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off-site for a minimum distance of 100 feet in flat terrain.

E. Drainage of Project Site Narrative – The DESCP shall include a narrative of the drainage measures to be taken to protect the site and downstream facilities. The narrative shall include a summary of the hydraulic analysis prepared by a professional engineer/erosion control specialist. The narrative shall state the watershed size in acres that was used in the calculation of drainage measures. The hydraulic analysis should be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the PPRP construction and laydown/demolition areas.

F. Clearing and Grading Plans – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography.

G. Clearing and Grading Narrative – The DESCP shall include a table with the quantities of material excavated or filled for the site and all project elements of the PPRP (project site, lay down/demolition areas, transmission corridors, and pipeline corridors). This table shall include those materials removed from the site due to demolition, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported. The

table shall distinguish whether such excavations or fill are temporary or permanent and the amount of material to be imported or exported.

H. Best Management Practices Plan – The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading/demolition, project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to prevent wind and water erosion in areas with existing soil contamination. Treatment control BMPs used during construction should enable testing of groundwater and/or stormwater runoff prior to discharge to San Pablo or San Francisco Bays.

I. Best Management Practices Narrative – The DESCP shall show the location (as identified in H above), timing, and a maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading/demolition, during project element excavation and construction, final grading/stabilization, and post-construction. Separate BMP implementation schedules shall be provided for each project element for each phase of construction. The maintenance schedule should include post-construction maintenance of structural control BMPs or a statement provided when such information will be available.

BACKGROUND

Potentially significant impacts to soil erosion and potential stormwater runoff could be mitigated through the preparation of construction and operation plans and the use of BMPs that would mitigate these problems. Section 8.12.4.2 states that the Chevron Refinery's Regional Water Quality Control Board (RWQCB)-approved Soil Management Program would mitigate potential stormwater runoff to less-than-significant levels for soil stockpiled during construction that could possibly introduce contaminant loading into the waste stream.

DATA REQUEST

57. Please provide a copy of the procedural documentation describing in detail the Chevron Refinery's Soil Management Program as it applies to the PPRP.

BACKGROUND

The SPPE application Sections 8.12.4.2 and 8.12.5, and Table 8.12-3 are inconsistent with respect to the mitigation required for stormwater runoff.

DATA REQUEST

58. Please clarify whether the stormwater runoff requires mitigation and, if so, what types of mitigation would be required.

BACKGROUND

The State Water Resource Control Board's (SWRCB) policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (SWRCB Resolution 75-58) states fresh inland water should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. The SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean; ocean water; brackish water from natural sources or irrigation return flow; inland waste waters of low total dissolved solids; and other inland waters. Additionally, Water Code Section 13550 finds the use of potable water for industrial and irrigation uses is a waste or an unreasonable use of potable water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available and meets certain conditions. The Energy Commission has also expressed this policy in the 2003 Integrated Energy Policy Report.

The PPRP proposes to replace existing steam boilers that have reached the end of their life expectancy with a COGEN 3000 power plant and a H_2-STG power plant. The PPRP is expecting the East Bay Municipal Utility District (EBMUD) to supply approximately an additional 196 acre-feet per year (AFY) of potable water beyond what is currently used by the existing steam boilers (Section 8.12.4.2). The total potable water use by the COGEN 3000 will be approximately 949 AFY (Table 2.1-1). However, we recognize that only 5.3 AFY of this potable water will be used for cooling purposes. We also recognize that Chevron has an ongoing relationship with EBMUD for the supply of recycled and potable water.

DATA REQUEST

59. Please provide a limited and general discussion highlighting the primary rationale, and economic and environmental factors supporting the proposed use of potable water compared to any alternative non-potable water sources, such as degraded or recycled water. In your discussion, also please identify any barrier to providing 100% recycled water as the water source for the cogeneration evaporative cooling makeup water.

60. Please provide a discussion of the reliability of the potable water supply and any potential impact to other municipal and industrial users of the potable water supply.

61. Please provide a discussion of the assurances (e.g., a will-serve letter or a letter of intent) that EBMUD has made to Chevron to supply this additional 196 AFY of potable water and the length of time of that commitment.

BACKGROUND

Recycled water and potable water for the Chevron Refinery will be provided by EBMUD. The SPPE application proposes using recycled water for the H_2-STG cooling tower makeup (Table 2.1-1) and potable for the COGEN 3000 evaporative cooler and cycle makeup water (Section 8.12.4.2). Both Table 2.1-1 and Section 8.12.3.2 state that at some future date the use of potable water will stop and the use of recycled water, from EBMUD's Richmond Advanced Recycled Expansion (RARE), will begin.

DATA REQUEST

62. Please clarify how long the Chevron Refinery will be using potable water.

63. Please provide a date when the RARE project come on-line and supply recycled water for the Chevron Refinery.

64. Please discuss whether there is currently an adequate supply of recycled water available now from EBMUD to service the entire PPRP? Please explain.

BACKGROUND

The SPPE application states that recycled water from EBMUD's RARE project will be used when the water becomes available (Section 8.12.3.2). An Environmental Impact Report for the RARE project was approved on May 8, 2007, presumably by the city of Richmond. The RARE project is proposed to treat effluent water to recycled water standards and deliver it to the Chevron Refinery through an existing potable water supply pipeline to Chevron's reverse osmosis (RO) water treatment facility. If the RARE project is constructed, all uses currently served by potable water from the RO facility would be served by RARE recycled water, reducing potable water use at the refinery by approximately 3 to 5 million gallons per day.

DATA REQUEST

65. Please discuss the reasonable assurances Chevron can provide that all uses currently served by potable water from the RO facility would be converted over to the RARE recycled water.

TECHNICAL AREA: Transmission System Engineering
Authors: Sudath Arachchige

BACKGROUND

Staff needs a complete interconnection study to analyze the reliability impacts and to be confident of identifying the interconnection facilities and any new and/or modified downstream facilities necessary to support the power output (60MW) increase of the PPRP to the Chevron's Richmond Refinery Distribution Electric system and to the Pacific Gas and Electric (PG&E) system. Such interconnection should comply with the Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, NERC/Western Systems Coordinating Council (WSCC) Planning Standards, and California Independent System Operator (California ISO) Planning Standards.

DATA REQUESTS

66. Please provide complete pre- and post-project electrical one-line diagrams (or resubmit Figure 2.1-6 and 2.1-7) of the PPRP switchyard showing all equipment for generator interconnections including any bus duct connectors or cables, 13.8kV and 12.47kV switchgears with refinery loads and breakers on the low side, generator step-up transformers, short overhead line or conductors with its configuration, buses and disconnect switches on the 115 kV side and their respective ratings.

67. Please provide electricity loads for all six distribution substations at the refinery and net output of the existing power plant.

68. Please provide a detailed description of any new downstream interconnection facilities, or any facilities that may require modifications due to interconnection of the project such as reconductoring or breaker changes.

69. Please consult with the California ISO and PG&E prior to providing a Power Flow analysis and a Short Circuit Study report for the PPRP with and without total Cogen MW (proposed 60MW + existing Cogen MW) for 2008 Summer Peak and Summer Off peak conditions.

    a. Please provide a Load Flow analysis for N-0 (normal condition), N-1 (single contingencies) and critical N-2 (double contingencies) system conditions. Provide a list of overload criteria violations in one table showing the loadings before and after the new generation and their differences side by side.

    b. Please provide power flow diagrams (MVA, percent loading & P. U. voltage) for base cases with and without the project. Power flow diagrams

must also be provided for all N-0, N-1 and N-2 studies where overload or voltage criteria violations appear.

c. Please provide a Short Circuit Study report in one table showing fault currents at important buses with and without the new generation, and respective breaker interrupting ratings side by side.

d. Please provide a list of mitigation measures considered and those selected for all criteria violations.

Technical Area: Visual Resources
Author: James Adams

BACKGROUND

There is a brief discussion of steam plumes that would be generated by the project in the visual resources section of the SPPE application. New plumes would be created by the cooling tower associated with the condensing steam turbine generator and the combustion turbine generator. However, there is no discussion of the size and frequency of the plumes or the meteorological conditions conducive to their formation. Likewise, there is no discussion of the cumulative visual impact of project plumes in combination with existing plumes at the Chevron refinery, and new visible plumes that would be created by facilities related to the Chevron Energy and Hydrogen Renewal Project.

DATA REQUEST

70. Please provide a discussion of the size and frequency of project-related plumes, and the meteorological conditions needed for plume formation. If a model is used to predict plumes, please provide the input and output data, and the name of the model.

71. Please provide a discussion of the cumulative visual impact of project plumes in combination with existing plumes at the Chevron refinery, and plumes that would be generated by the Chevron renewal project.

72. a. Please provide a high-quality 11” by 17” color photo-simulation, at life-size scale, of plumes that would be generated during a cold, clear winter day (no rain/no fog).

    b. Provide the temperature and relative humidity that corresponds with the plumes in the simulation. The simulation should show the project plumes, existing plumes at the Chevron facility, and plumes that would be generated by the Chevron renewal project.

    c. Please provide the size (height, length, width) of the simulated project plume and the frequency of its occurrence.

Technical Area: Visual Resources - Plume
Author: William Walters

COOLING TOWER OPERATING DATA

BACKGROUND

Staff plans to perform a plume modeling analysis for the cooling tower. Staff requires additional cooling tower operating information to complete this analysis. Staff must obtain the design and operating parameters of the Chevron Richmond H2-STG cooling tower to confirm its visible plume frequency potential.

DATA REQUEST

73. a. Please summarize for the cooling tower the conditions that affect vapor plume formation including cooling tower heat rejection, exhaust temperature, and exhaust mass flow rate.

b. Please provide values to complete the table, and additional data as necessary for staff to be able to determine how the heat rejection load varies with ambient conditions and also determine at what ambient conditions cooling tower cells may be shut down.

Parameter	**H2-STG Cooling Tower Exhausts**		
Number of Cells	4 cells		
Cell Height			
Cell Diameter			
Tower Housing Length			
Tower Housing Width			
Ambient Temperature*	43°F	60°F	85°F
Ambient Relative Humidity	77.5%	67.7%	41.1%
Number of Cells in Operation			
Heat Rejection (MW/hr)	40.2	41.1	42.5
Exhaust Temperature (°F)			
Exhaust Flow Rate (lb/hr)			

*Ambient conditions and heat rejection estimate are based on Figures 2.1-5 and 2.1-15 of the SPPE Application.

Additional combinations of temperature and relative humidity or curves showing heat rejection vs. ambient condition, if provided by the applicant, will be used to more accurately represent the cooling tower exhaust conditions. Please include appropriate design safety margins for the heat rejection, exhaust flow rate and exhaust temperature in consideration that the air flow per heat rejection ratio is often used as a condition of certification design limit.

74. Please provide the cooling tower manufacturer and model number information and a fogging frequency curve from the cooling tower vendor, if available.

75. Please indicate under what ambient conditions cooling tower cells may be shut down while still operating the H2-STG facility at full load.

76. Please confirm that the cooling tower fan motors will not have variable speed/flow controllers.

GAS TURBINE/HRSG OPERATING DATA

BACKGROUND

Staff plans to perform a plume modeling analysis for the gas turbine/HRSG. Staff requires additional gas turbine/HRSG operating information to complete this analysis. Staff must obtain the design and operating parameters of the Gas Turbine HRSG to confirm its visible plume frequency potential.

DATA REQUEST

77. Please summarize for the gas turbine/HRSG the conditions that affect vapor plume formation including exhaust temperature, exhaust mass flow rate, and exhaust water content. Please provide values to complete and correct the table.

Parameter	**Gas Turbine/HRSGing Tower Exhausts**		
Stack Height*	50.6 meters (166 feet)		
Stack Diameter*	3.66 meters (12 feet)		
Ambient Temperature*	35°F	60°F	105°F
Ambient Relative Humidity*	90%	65%	25%
Exhaust Temperature (°F)*	161	162	159
Exhaust Flow Rate (1,000 lb/hr)*	1,194	1,221	1,148
Exhaust Water Flow Rate (lb/hr)			

*Ambient conditions and exhaust parameters are based on Figures 2.1-11 to 2.1-13 of the SPPE Application. Stack height and diameter are from the air quality modeling CD input files. The stack parameters should conform with information provided for air quality data responses.

Additional combinations of temperature and relative humidity if provided by the applicant will be used to more accurately represent the gas turbine/HRSG exhaust conditions.

VISIBLE PLUME MODELING METEOROLOGICAL DATA

BACKGROUND

Staff will model the cooling tower plumes using previously formatted meteorological data for the years 1990 to 1995, from San Francisco International Airport (SFO) unless the applicant provides data from a more representative monitoring station(s). Please note that while this meteorological station is somewhat distant from the project site, it is also adjacent to the bay and is considered relatively representative in terms of temperature and relative humidity conditions at the project site. Staff needs this information for completeing its visible plume and visual impacts analysis.

DATA REQUESTS

78. Please provide representative raw and formatted meteorological data for visible plume modeling. This meteorological data set must be reasonably determined to be from a more project representative site than SFO and include at least 5 years of 95 percent or better complete data. Additionally, this data set must have all of the normal ISCST3 meteorological data parameters, plus the following formatted parameters: relative humidity, present weather, visibility, cloud cover, and ceiling height. As appropriate, the units (such as knots for wind speed) for each of the parameters must also be provided.

Technical Area: Waste Management
Author: Christopher Dennis, P.G.

BACKGROUND

A description of the expected waste stream, presumably generated during the Chevron Richmond Power Plant Replacement Project (PPRP) operation, is provided in Table 8.11.2.2. In order for staff to analyze the waste management of the PPRP, a description of the origin, type, hazardous or non-hazardous classification, estimated annual volume or weight, and estimated frequency of waste expected to be generated for each waste stream during each phase of the project is needed. In addition, the method of management of each type of waste and a description of proposed waste disposal facilities that will be used for the waste is necessary for staff to complete its waste management analysis.

DATA REQUEST

79. a. Please provide a table listing wastes associated with the demolition, construction, and operational phases of the project.

    b. Provide a description of the origin, type, hazardous or non-hazardous classification, estimated annual volume or weight, and estimated frequency of waste expected to be generated for each waste stream during each phase of the project.

    c. Discuss the proposed method of management of that waste. Include information on Chevron's efforts to reduce and recycle waste.

    d. Describe proposed disposal facilities for the waste expected to be generated during each phase of the project.

BACKGROUND

Petroleum contaminated soil and groundwater exists at the PPRP demolition and construction sites. Contaminated soil and groundwater is likely to be encountered by site workers during the demolition, construction, and operational phases of the PPRP. A plan needs to be in place for managing and properly disposing of this contaminated soil and water in addition to ensuring worker health and safety.

DATA REQUEST

80. a. Please provide a waste management plan for contaminated soil and groundwater encountered during PPRP demolition and construction.

    b. Provide a waste management plan to be used on an ongoing basis during PPRP operation.

81. a. Please provide a description of the status of the project under the jurisdiction of either the Regional Water Quality Control Board (RWQCB) and Department of Toxic Substances Control (DTSC) and a description of any requirements made by either of these State agencies regarding construction of this project.

    b. If there are no agency requirements (e.g., site assessment, risk assessment, remediation) please explain why.

BACKGROUND

The PPRP will increase the amount of waste received by local and regional waste disposal facilities.

DATA REQUEST

82. a. Please provide a list of industrial waste generating projects in the permitting and construction phases within Contra Costa County for inclusion in a cumulative impacts assessment.

    b. Describe the origin, type, hazardous or non-hazardous classification, estimated annual volume or weight, and estimated frequency of waste expected to be generated for each waste stream during each phase of these projects.

83. Please characterize PPRP's contribution to the cumulative impact on local and regional disposal facilities.